Objectives

• Develop a prototype system for the automated detection and mapping of volcanic SO2 plumes based on multispectral TIR image data
• Validate system and data products through analysis of MODIS, VIIRS, and ASTER data records for the long-lived (29 August 2014 – 27 February 2015) eruption of Bardarbunga Volcano, Iceland
• Prepare and submit Algorithm Theoretical Basis Documents (ATBD) to MODIS, VIIRS, and ASTER Projects for future inclusion of plume detection and mapping system in corresponding Product Generation Systems (PGS)

Plume Detection and Mapping

• Estimate Surface Temperature
• Derive Plume and Cloud Masks from Temperature Estimates
• Combine Plume and Cloud Masks to Make Gas Retrieval Mask
• Estimate Gas Column Density Within Retrieval Mask

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